

WHAT IS CLAIMED IS:

1                   1.       An unwinding system for handling reels of tissue, of the type of those  
2       whereby for each ply of laminar tissue to be applied use is made of a pair of reels (25 and  
3       32), of which one supplies the laminar web to be applied, whilst the other is placed on stand-  
4       by to be spliced onto the infeed line when the supply reel is spent, characterised in that the  
5       two reels (25 and 32) of the unwinding unit are mounted in their respective reel-carrier  
6       assemblies (1 and 2) which are capable of vertical displacement, with one reel being located  
7       on the upper part and the other on the lower part at a distance between them that enables the  
8       reel in stand-by to be prepared whilst the other is in the operating mode; in that each reel is  
9       mounted between their respective holding cones (7 and 8), by means of which unwinding  
10      rotation is controlled, with said cones (7 and 8) also being capable of being moved closer  
11      together or further apart for the loading and unloading of the corresponding reel; and in that  
12      the reel-carrier from which the reel is removed is displaced vertically until it occupies the  
13      upper position, whilst the reel-carrier that holds the fresh reel that is coming into operation  
14      drops to a lower position, freeing the upper part for the incorporation of a new reel in the  
15      reel-carrier that has become unoccupied.

1                   2.       An unwinding system for handling reels of tissue, all in accordance  
2       with claim 1, characterised in that for the application of two laminar plies of tissue two  
3       symmetrical unwinding units are arranged, each one of them consisting of their respective  
4       reel-carrier assemblies (1 and 2) capable of being displaced vertically and fitted with cones (7  
5       and 8) for holding the corresponding reels (25 and 32).

1                   3.       An unwinding system for handling reels of tissue, all in accordance  
2       with claims 1 and 2, characterised in that each unwinding unit includes a splicing mechanism  
3       for the automatic splicing of the laminar web on the reel (25) in stand-by with the web on the  
4       reel in operation (32) when the latter is spent, with said mechanism consisting of a fixed bar  
5       (12), a moving bar (13) operated by pneumatic cylinders that is capable of being displaced  
6       towards the fixed bar (12) and another moving bar (15) operated by a chain and pinion  
7       system that is capable of displacement between a position of operation on it and a position of  
8       insertion between the fixed bar (12) and the moving bar (13) to be grasped between them,  
9       with said bar (15) incorporating a clamp (29), by means of which the leading edge (28) of the  
10      laminar web that is in the stand-by position may be taken up.

1                   4.       An unwinding system for handling reels of tissue, all in accordance  
2 with claim 3, characterised in that the splicing mechanism consists of an automatic cutting  
3 system (45) which is fitted with a blade (46) capable of displacement by pneumatic action to  
4 a position resting on the web (41) of the reel (32) that is running out, in conjunction with a  
5 change in the direction of rotation of said reel (32) that causes a tug on the web (41), which  
6 thus effectively leads to the cutting of said web (41) subsequent to the splicing of the fresh  
7 web (40) which is to continue the supply; with the blade (46) being envisaged in the shape of  
8 a comb, to facilitate the incision on the web (41) to be cut.

1                   5.       An unwinding system for handling reels of tissue, all in accordance  
2 with claims 1 to 3, characterised in that at the outlet of each unwinding unit there is a  
3 mechanism comprising two fixed rollers (16 and 17) and a moving roller (18) capable of  
4 vertical displacement and controlled by a synchronisation device (20), with said mechanism  
5 consisting of a rocker arm for tension in the supply line and a magazine for the passage of the  
6 corresponding web for the continuity of the supply during splicing.

1                   6.       An unwinding system for handling reels of tissue, all in accordance  
2 with claim 1, characterised in that inserted into each reel to be mounted on the unwinding  
3 device there are bushings (21) that are fitted into the ends of the mandrel of each  
4 corresponding reel, with said bushings (21) featuring lateral windows (22), to act as sockets  
5 for expansion keys (23) on the cones (7 and 8) for holding the reel in the assembly, which are  
6 inserted into said bushings (21), establishing a rotary connection for the operation of the  
7 corresponding reel by means of said insertion of the keys (23) into the windows (22) on the  
8 aforementioned bushings.

1                   7.       An unwinding system for handling reels of tissue, all in accordance  
2 with claim 6, characterised in that the bushings (21) feature a groove that remains on the  
3 outside of the reel to be incorporated, for its attachment by means of said groove onto devices  
4 for lifting the reel into position on the assembly, the said groove having positioning contours  
5 to adapt to the lifting device so that the bushings (21) are positioned to ensure that the keys  
6 (23) on the holding cones (7 and 8) fit into the windows (22).

1                   8.       An unwinding system for handling reels of tissue, all in accordance  
2 with claim 1, characterised in that below each reel-carrier (1 and 2) a retractable ramp (48) is  
3 provided, with a stop (49) also retractable and in front of it, which comprise a receiving area

- 4 for the unloading by freefall of the mandrels (47) of the spent reels, to situate said mandrels
- 5 on a conveyor belt (52) for their removal.